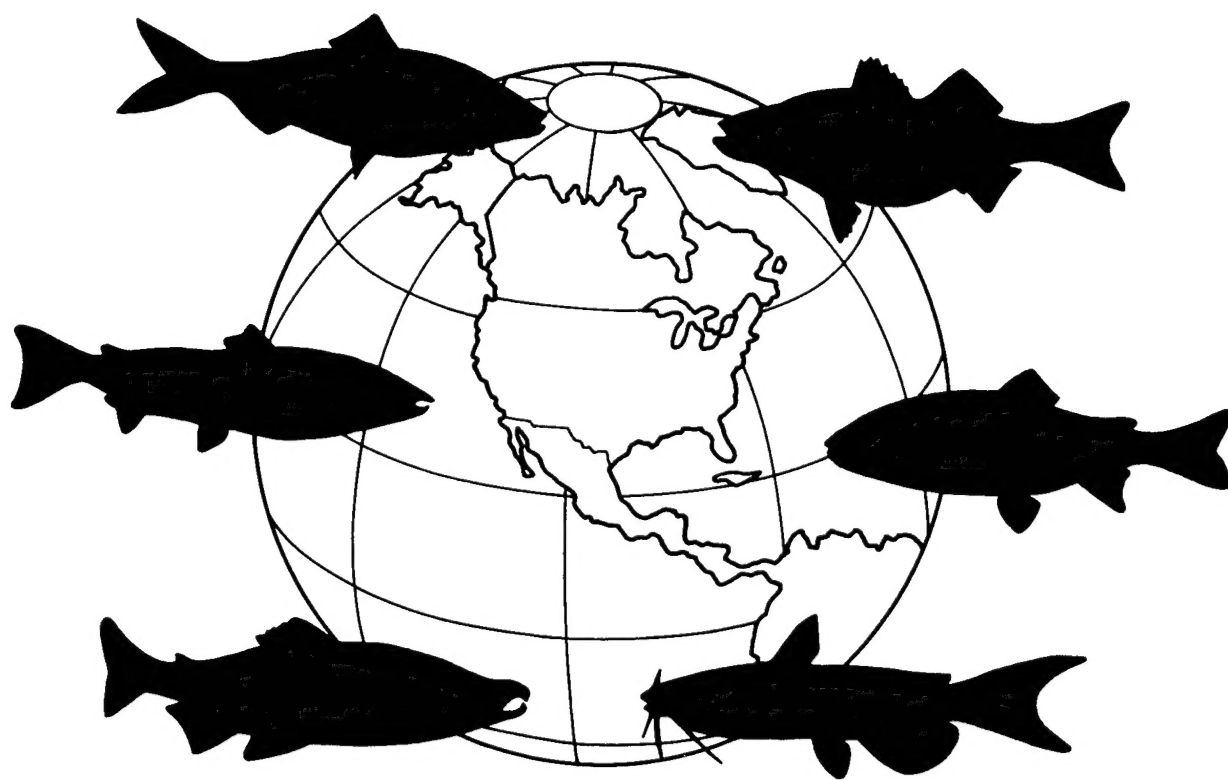


Fish Disease Leaflet 81

Selected Bibliography on Diseases and Parasites of Fishes:
Books, Proceedings, and Reviews, 1978-1989



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by

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Introduction

This bibliography was prepared to assist students of fish health, fishery biologists, librarians, and others in selecting reading materials or developing library collections on the diseases and parasites of fishes. A continuation of *Fish Disease Leaflet* 53, "Diseases and parasites of fish: an annotated bibliography of books and symposium, 1904-1977," it includes English language books, proceedings, and review articles published from 1978 to 1989. It includes references that are readily available by purchase or through interlibrary loan.

The references are arranged alphabetically by author surname and then by year within the following major subject classifications: general works, bacterial diseases, histology, drugs, environmental diseases, fungal diseases, immunology, nutritional diseases, parasites, and viral diseases.

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General Works

- Ahne, W., editor. 1980. Fish diseases. Third COPRAQ session. Proceedings of the third session on Cooperative Programme of Research on Aquaculture, Munich, Germany, 23-26 October 1979. Springer-Verlag, Berlin, Federal Republic of Germany. 252 pp.
- Amos, K. H., editor. 1985. Procedures for the detection and identification of certain fish pathogens. 3rd ed. Fish Health Section, American Fisheries Society, Corvallis, Ore. 114 pp.
- Boustead, N. C. 1982. Fish diseases recorded in New Zealand, with a discussion on potential sources and certification procedures. Fish. Res. Div. Occas. Publ. (N. Z.) 34. 19 pp.

- Brown, E. E., and J. B. Gratzek. 1980. Common fish diseases and their control. Pages 237-337 in E. E. Brown and J. B. Gratzek. Fish farming handbook. AVI Publishing Co., Westport, Conn.
- Crosa, J. H., editor. 1983. Bacterial and viral diseases of fish: molecular studies. University of Washington, Seattle, Wash. Sea Grant Publ. WSG-WO-83-1. 86 pp.
- Dethlefsen, V. 1984. Diseases in North Sea fishes. Helgol. Meeresunters. 37:353-374.
- Dupree, H. K. 1981. An overview of the various techniques to control infectious diseases in water supplies and in water reuse aquacultural systems. Pages 83-89 in L. J. Allen and E. C. Kinney, eds. Proceedings of the bio-engineering symposium for fish culture, Traverse City, Mich., 16-18 October 1979. Fish Culture Section of the American Fisheries Society, Bethesda, Md.
- Egidius, E. 1984. Diseases of salmonids in aquaculture. Helgol. Meeresunters. 37:547-569.
- Egusa, S., editor. 1981. Proceedings of an international seminar on fish diseases, Tokyo, Japan, 8-9 November 1980. Fish Pathol. 15:129-325.
- Egusa, S. 1983. Disease problems in Japanese yellowtail, *Seriola quinqueradiata*, culture: a review. Rapp. P.-V. Reun. Cons. Int. Explor. Mer 182:10-18.
- Egusa, S., editor. 1985. Proceedings of an international seminar on fish pathology, Tokyo, Japan, 8-10 September 1984. Fish Pathol. 20:85-443.
- Ellis, A. E., editor. 1985. Fish and shellfish pathology. Academic Press, Orlando, Fla. 412 pp.
- Ford, D. M., editor. 1981. The diseases of ornamental fishes. Waltham Symposium 3. J. Small Anim. Pract. 22:311-414.
- Fryer, J. L., J. S. Rohovec, E. F. Pulford, R. E. Olson, D. P. Ransom, J. R. Winton, C. N. Lannan, R. P. Hedrick, and W. J. Groberg. 1979. Proceedings from a conference on disease inspection and certification of fish and fish eggs. Oregon State University, Corvallis, Sea Grant Commun. ORESU-W-79-001. 40 pp.
- Grischkowsky, R. S., editor. 1981. Fish. Pages 335-479 in R. A. Dieterich, ed. Alaskan wildlife diseases. Institute of Arctic Biology, University of Alaska, Fairbanks.
- Hargis, W. J., editor. 1985. Parasitology and pathology of marine organisms of the world ocean. U.S. Natl. Mar. Fish. Serv., NOAA Tech. Rep. NMFS 25. 135 pp.

- Hayes, J., editor. 1984. Keeping fish healthy. Part VI. Pages 309–370 in J. Hayes, ed. 1984 Yearbook of agriculture: animal health; livestock and pets. U.S. Government Printing Office, Washington, DC.
- Hoskins, G. E., C. J. West, and A. E. Kling. 1983. Computer management of fish health problems in hatcheries. *Can. Spec. Publ. Fish. Aquat. Sci.* 68: 42 pp.
- Huet, M., and J. A. Timmermans. 1986. Enemies and diseases of fish. Chapter 15, Section II. Fish diseases. Pages 367–386 in M. Huet and J. A. Timmermans, eds. Textbook of fish culture: breeding and cultivation of fish. 2nd ed. Fishing News Books Ltd., Farnham, Surrey, England.
- Kabata, Z. 1985. Parasites and diseases of fish cultured in the tropics. Taylor and Francis, Philadelphia, Pa. 318 pp.
- Kimble, C. E. 1985. Aquaculture: public health, regulatory, and management aspects. Zarcon Press, Silver Spring, Md. 185 pp.
- Kinne, O., editor. 1984. Diseases of marine animals. Volume 4, Part 1. Introduction, Pisces. Biologische Anstalt Helgoland, Hamburg, Federal Republic of Germany. 541 pp.
- Kinne, O., and H. P. Bulnheim, editors. 1984. Diseases of marine organisms. International Helgoland Symposium 1983. *Helgol. Meeresunters.* 37:1–663.
- Klontz, G. W. 1982. Bacterial kidney disease in salmonids: an overview. Pages 177–199 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. Antigen of fish pathogens; development and production for vaccines and serodiagnostics. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Kou, G.-H., J. L. Fryer, and M. L. Landolt. 1981. Proceedings of Republic of China–United States cooperative science seminar on fish diseases, University of Washington, Seattle, 23–26 July 1979. NSC Symposium Series 3. National Science Council, Taipei, Taiwan. 128 pp.
- Lee, J. S. 1981. Controlling diseases of catfish. Pages 137–164 in J. S. Lee, ed. Commercial catfish farming. 2nd ed. Interstate Printers and Publishers, Danville, Ill.
- Liewes, E. W. 1984. Culture, feeding, and diseases of commercial flatfish species. A. A. Balkema, Boston, Mass. 104 pp.
- McAllister, K. W., J. A. Mann, and L. C. McKenzie. 1987. Annotated bibliography of the diseases and parasites of striped bass. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 76. 16 pp.
- McVicar, A. H., and R. H. Richards. 1981. Fish disease: its prevention, diagnosis, and treatment. Pages 279–301 in A. D. Hawkins, ed. Aquarium systems. Academic Press, New York.
- Mann, J. A. 1978. Diseases and parasites of fishes: an annotated bibliography of books and symposia, 1904–1977. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 53. 28 pp.
- Meyer, F. P., J. W. Warren, and T. G. Carey, editors. 1983. A guide to integrated fish health management in the Great Lakes Basin. Great Lakes Fishery Commission, Ann Arbor, Mich., Spec. Publ. 83-2. 262 pp.
- Mitchell, A. J. 1984. Parasites and diseases of striped bass. Pages 177–204 in J. P. McCraren, ed. Aquaculture of striped bass; a proceedings. Maryland Sea Grant Program, University of Maryland, College Park, UM-SG-MAP-84-01.
- Mitchell, A. J., and G. L. Hoffman. 1985. Submitting samples for fish disease diagnosis. U.S. Fish and Wildlife Service, Fish Farming Experimental Station, Stuttgart, Ark. 15 pp.
- Möller, H. 1979. Geographical distribution of fish diseases in the NE Atlantic. *Meeresforschung* 27:217–235.
- Möller, H. 1981. Field guide to the diagnosis of fish diseases and important fish parasites in North Sea and Baltic Sea. Report 86. Institut für Meereskunde an der Universität Kiel, Kiel, Federal Republic of Germany. 65 pp.
- Möller, H., and K. Anders. 1986. Diseases and parasites of marine fishes. Möller, Kiel, Federal Republic of Germany. 365 pp.
- Moore, B. R., A. J. Mitchell, B. R. Griffin, and G. L. Hoffman. 1984. Parasites and diseases of pond fishes. Pages 177–205 in H. K. Dupree and J. V. Huner, eds. Third report to the fish farmers. The status of warmwater fish farming and progress in fish farming research. U.S. Fish and Wildlife Service, Washington, DC.
- Munro, A. L. S., A. H. McVicar, and R. Jones. 1983. The epidemiology of infectious disease in commercially important wild marine fish. *Rapp. P.-V. Reun. Cons. Int. Explor. Mer* 182:21–32.
- National Agency of Environmental Protection, Royal Veterinary and Agricultural University, and Danish Institute for Fisheries and Marine Research, Denmark. 1982. Field investigations of fish diseases. *Bull. Eur. Assoc. Fish Pathologists* 2 (suppl. 1):1–10.
- Nie, D.-S., and J.-P. Pan. 1985. Diseases of grass carp (*Ctenopharyngodon idellus* Valenciennes, 1844) in China, a review from 1953 to 1983. *Fish Pathology* 20:323–330.
- Novotny, A. J., M. M. Sigel, and S. Waterman, editors. 1978. Health, disease, and disease prevention in cultured aquatic animals; a proceedings. U.S. Natl. Mar. Fish Serv. Mar. Fish. Rev. 40(3):1–71.
- Olah, J., editor. 1984. Fish, pathogens, and environment in European polyculture. *Symp. Biol. Hung.* 23. 265 pp.
- Oswald, E., and J. H. Hulse, editors. 1983. Fish quarantine and fish diseases in Southeast Asia. Report of a workshop held in Jakarta, Indonesia, 7–10 December 1982. International Development Research Center, Ottawa, Canada. 79 pp.
- Overstreet, R. M. 1978. Marine maladies? Worms, germs, and other symbionts from the northern Gulf of Mexico. Miss.-Ala. Sea Grant Consortium, MASGP-78-021. 140 pp.
- Paperna, I. 1980. Parasites, infections, and disease of fish in Africa. CIFA (Comm. Inland Fish. Afr.) Tech. Pap. 7. 216 pp.
- Paperna, I. 1983. Review of diseases of cultured warm-water marine fish. *Rapp. P.-V. Reun. Cons. Int. Explor. Mer* 182:44–48.
- Paperna, I., and R. M. Overstreet. 1981. Parasites and diseases of mullets (*Mugilidae*). Pages 411–493 in O. H. Oren, ed. Aquaculture of grey mullets. Cambridge University Press, London, England.
- Piper, R. G., I. B. McElwain, L. E. Orme, J. P. McCraren, L. G. Fowler, and J. R. Leonard. 1982. Fish health management. Pages 263–347 in R. G. Piper, et al. Fish hatchery management. U.S. Fish and Wildlife Service, Washington, DC. (Available from American Fisheries Society, Bethesda, Md.)
- Plumb, J. A., editor. 1985. Principal diseases of farm raised catfish. *South. Coop. Ser. Bull.* 225. 76 pp.
- Plumb, J. A., and P. R. Bowser. 1983. Microbial fish disease laboratory manual. Alabama Agricultural Experiment Station, Auburn University, Auburn. 95 pp.
- Post, G. 1983. Textbook of fish health. T. F. H. Publications, Neptune, N.J. 256 pp.
- Rickards, W. L., editor. 1978. A diagnostic manual of eel diseases occurring under culture conditions in Japan. North Carolina State University, Raleigh, Sea Grant Publ. UNC-SG-78-06. 89 pp.
- Roberts, R. J., editor. 1978. Fish pathology. Bailliere Tindall, London, England. 318 pp.

- Roberts, R. J., editor. 1982. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9. 305 pp.
- Roberts, R. J., and C. Summerville. 1982. Diseases of tilapia. Pages 247–263 in R. S. V. Pullin and R. H. Lowe-McConnel. The biology and culture of tilapias. ICLARM Conf. Proc. 7.
- Sano, T., and H. Fukuda. 1987. Principal microbial diseases of mariculture in Japan. *Aquaculture* 67:59–69.
- Shotts, E. B., Jr., and J. B. Gratzek. 1984. Bacteria, parasites, and viruses of aquarium fish and their shipping waters. Pages 215–232 in W. R. Courtenay, Jr., and J. R. Stauffer, Jr., eds. Distribution, biology, and management of exotic fishes. Johns Hopkins University Press, Baltimore, Md.
- Sindermann, C. J. 1984. Disease in marine aquaculture. *Helgol. Meeresunters.* 37:505–532.
- Sindermann, C. J., J. J. Ziskowski, and V. T. Anderson, Jr. 1978. A guide for the recognition of some disease conditions and abnormalities in marine fish. U.S. Natl. Mar. Fish. Serv., NMFS-NFC-TSR-14. 60 pp.
- Stewart, J. E., editor. 1983. Diseases of commercially important marine fish and shellfish; a special meeting held in Copenhagen, 1–3 October 1980. Rapp. P.-V. Reun. Cons. Int. Explor. Mer 182:1–150.
- Van Banning, P., editor. 1987. Second international colloquium on pathology in marine aquaculture (PAMAQ II), University of Oporto, Portugal, 7–11 September 1986. *Aquaculture* 67:1–272.
- Warren, J. W. 1982. Diseases of hatchery fish. U.S. Fish and Wildlife Service, Twin Cities, Minn. 91 pp.
- Wood, J. W. 1979. Diseases of Pacific salmon, their prevention and treatment. Washington Department of Fisheries, Olympia. 82 pp.
- Bullock, G. L., and R. L. Herman. 1985. *Edwardsiella* infections of fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 71. 6 pp.
- Bullock, G. L., and R. L. Herman. 1988. Bacterial kidney disease of salmonid fishes caused by *Renibacterium salmoninarum*. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 78. 10 pp.
- Bullock, G. L., T. C. Hsu, and E. B. Shotts, Jr. 1986. Columnaris disease of fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 72. 9 pp.
- Bullock, G. L., and K. Wolf. 1986. Infectious diseases of cultured fishes: current perspectives. U.S. Fish Wildl. Serv., Fish Wildl. Leaflet. 5. 13 pp.
- Busch, R. A. 1981. The current status of diagnostic serology for the major bacterial diseases of fishes. *Dev. Biol. Stand.* 49:85–96.
- Busch, R. A. 1982. Enteric redmouth disease (*Yersinia ruckeri*). Pages 201–222 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. Antigenes of fish pathogens; development and production for vaccines and serodiagnostics. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Cipriano, R. C., G. L. Bullock, and S. W. Pyle. 1984. *Aeromonas hydrophila* and motile aeromonad septicemias of fish. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 68. 23 pp.
- Colwell, R. R., and D. J. Grimes. 1984. *Vibrio* diseases of marine fish populations. *Helgol. Meeresunters.* 37:265–287.
- Egidius, E. 1987. Vibriosis: pathogenicity and pathology; a review. *Aquaculture* 67:15–28.
- Fryer, J. L., and J. S. Rohovec. 1984. Principal bacterial diseases of cultured marine fish. *Helgol. Meeresunters.* 37:533–545.
- Fryer, J. L., and J. E. Sanders. 1981. Bacterial kidney disease of salmonid fish. *Ann. Rev. Microbiol.* 33:273–298.
- Herman, R. L., and K. Wolf. 1987. Epitheliocystis infection of fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 75. 4 pp.
- Horne, M. T. 1982. The pathogenicity of *Vibrio anguillarum* (Bergman). Pages 171–187 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.
- Jensen, N. J. 1983. The ulcer syndrome in cod (*Gadus morhua*): a review. Rapp. P.-V. Reun. Cons. Int. Explor. Mer 182:58–64.
- Lewis, D. H., and L. R. Udey. Meningitis in fish caused by an asporogenous anaerobic bacterium. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 56. 5 pp.
- McCarthy, D. H., and R. J. Roberts. 1980. Furunculosis of fish—the present state of our knowledge. Pages 293–341 in M. R. Droop and H. W. Jannasch, eds. Advances in aquatic microbiology. Vol. 2. Academic Press, New York.
- Michel, C. 1982. Progress towards furunculosis vaccination. Pages 151–169 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.
- Munro, A. L. S. 1982. The pathogenesis of bacterial diseases of fishes. Pages 131–149 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.
- Newman, S. G. 1982. *Aeromonas hydrophila*: a review with emphasis on its role in fish disease. Pages 87–115 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. Antigenes of fish pathogens; development and production for vaccines and serodiagnostics. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Paterson, W. D. 1981. *Aeromonas salmonicida* as an immunogen. *Dev. Biol. Stand.* 49:375–385.
- Amend, D. F. 1982. Columnaris (*Flexibacter columnaris*) disease of freshwater fishes and a brief review of other flexibacterial diseases of fish. Pages 139–149 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. Antigenes of fish pathogens; development and production for vaccines and serodiagnostics. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Amend, D. F., and K. A. Johnson. 1981. Current status and future needs of *Vibrio anguillarum* bacterins. *Dev. Biol. Stand.* 49:403–417.
- Austin, B., and D. A. Austin. 1987. Bacterial fish pathogens: disease in farmed and wild fish. Halsted Press, New York. 364 pp.
- Becker, C. D., and M. P. Fujihara. 1978. The bacterial pathogen *Flexibacter columnaris* and its epizootiology among Columbia River fish: a review and synthesis. *Am. Fish. Soc., Monogr.* 2. 92 pp.
- Bullock, G. L. 1978. Pasteurellosis of fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 54. 7 pp.
- Bullock, G. L. 1981. Streptococcal infections of fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 63. 7 pp.
- Bullock, G. L. 1984. Enteric redmouth disease of salmonids. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 67. 14 pp.
- Bullock, G. L. 1987. Vibriosis in fish. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 77. 11 pp.
- Bullock, G. L., R. C. Cipriano, and S. F. Snieszko. 1983. Furunculosis and other diseases caused by *Aeromonas salmonicida*. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 66. 29 pp.

- Paterson, W. D. 1982. Furunculosis and other associated diseases caused by *Aeromonas salmonicida*. Pages 119–136 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. Antigen of fish pathogens; development and production for vaccines and serodiagnostics. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Robohm, R. A. 1982. *Pasteurella piscicida*. Pages 161–175 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. Antigen of fish pathogens; development and production for vaccines and serodiagnostics. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Rogers, W. A. 1982. Edwardsielliosis in fishes. Pages 153–159 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. Antigen of fish pathogens; development and production for vaccines and serodiagnostics. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Sanders, J. E., and J. L. Fryer. 1988. Bacteria of fish. Pages 115–142 in B. Austin, ed. Methods in aquatic bacteriology. John Wiley & Sons, New York.
- Sano, T., and H. Fukuda. 1987. Principal microbial diseases of mariculture in Japan. *Aquaculture* 67:59–69.
- Snieszko, S. F. 1978. Mycobacteriosis (tuberculosis) of fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 55. 9 pp.
- Snieszko, S. F. 1981. Bacterial gill disease of freshwater fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 62. 11 pp.
- Tebbit, G. L., and T. D. Goodrich. 1982. Vibriosis and the development of effective bacterins for its control. Pages 225–248 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. Antigen of fish pathogens; development and production for vaccines and serodiagnostics. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Van Duijn, C., Jr. 1981. Tuberculosis in fishes. Waltham Symposium 3. *J. Small Anim. Pract.* 22:391–411.
- Ward, P. D. 1982. The development of bacterial vaccines for fish. Pages 47–58 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.

Drugs

- Alderman, D. J. 1988. Fisheries chemotherapy: a review. Pages 1–61 in J. F. Muir and R. J. Roberts, eds. Recent advances in aquaculture. Vol. 3. Timber Press, Portland, Ore.
- Austin, B. 1985. Evaluation of antimicrobial compounds for the control of bacterial kidney disease in rainbow trout, *Salmo gairdneri* Richardson. *J. Fish Dis.* 8:209–220.
- Bailey, T. A. 1984. Effects of twenty-five compounds on four species of aquatic fungi (Saprolegniales) pathogenic to fish. *Aquaculture* 38:97–104.
- Guarino, A. M., D. B. Batson, and M. G. Zeeman, editors. 1986. Workshop on drug disposition and metabolism in aquatic species, Gaithersburg, Md., 20 August 1984. *Vet. Hum. Toxicol.* 28(suppl. 1):1–56.
- Herman, R. L., and G. L. Bullock. 1986. Antimicrobials and fish: a review of drugs used to treat bacterial diseases of channel catfish and rainbow trout. *Vet. Hum. Toxicol.* 28(suppl. 1):11–17.
- Herwig, N. 1979. Handbook of drugs and chemicals used in the treatment of fish diseases; a manual of fish pharmacology and materia medica. Charles C. Thomas, Springfield, Ill. 272 pp.
- Kuhns, J. F. 1981. FISHDRUG/TXT: a computer generated bibliographic index of the drugs and chemicals used in

treating fish diseases. Parts 1–4. *J. Aquaric.* 2:4–18, 29–43, 45–58, 90–102.

- Schnick, R. A., F. P. Meyer, and D. L. Gray. 1989. A guide to approved chemicals in fish production and fishery resource management. Rev. ed. University of Arkansas Cooperative Extension Service, Little Rock, and U.S. Fish and Wildlife Service, National Fisheries Laboratory, LaCrosse, Wis. 27 pp.

Environmental Diseases

- Cairns, V. W., P. V. Hodson, and J. O. Nriagu, editors. 1984. Contaminant effects on fisheries. John Wiley & Sons, New York. 333 pp.
- Dawe, C. J., J. C. Harshbarger, S. Kondo, T. Sugimura, and S. Takayama, editors. 1981. Phyletic approaches to cancer; proceedings of the 11th international symposium of the Princess Takamatsu Cancer Research Fund, Tokyo, Japan, 1980. Japan Scientific Societies Press, Tokyo, Japan. 400 pp.
- Dethlefsen, V., and K. Tiews. 1985. Review on the effects of pollution on marine fish life and fisheries in the North Sea. *J. Appl. Ichthyol.* 1:97–118.
- Fickeisen, D. H., M. J. Schneider, and G. A. Wedemeyer, editors. 1980. Special section: gas bubble disease. *Trans. Am. Fish. Soc.* 109:657–771.
- Hollis, E. H., and R. E. Lennon. 1987. The toxicity of 1,085 chemicals to fish. (Report prepared in 1954.) U.S. Environ. Prot. Agency, EPA 560/6-87-002. 198 pp.
- Jensen, N. J. 1983. The ulcer syndrome in cod (*Gadus morhua*): a review. *Rapp. P.-V. Reun. Cons. Int. Explor. Mer* 182:58–64.
- Johnson, W. W., and M. T. Finley. 1980. Handbook of acute toxicity of chemicals to fish and aquatic invertebrates. U.S. Fish Wildl. Serv., Resour. Publ. 137. 98 pp.
- Lewis, W. M., Jr., and D. P. Morris. 1986. Toxicity of nitrite to fish: a review. *Trans. Am. Fish. Soc.* 115:183–195.
- Malins, D. C. 1982. Alterations in the cellular and subcellular structure of marine teleosts and invertebrates to petroleum in the laboratory and field: a critical review. *Can. J. Fish. Aquat. Sci.* 39:877–889.
- Marking, L. L. 1987. Gas supersaturation in fisheries: causes, concerns, and cures. U.S. Fish Wildl. Serv., Fish Wildl. Leaflet. 9. 10 pp.
- McLeod, G. C. 1978. The gas bubble disease of fish. Pages 319–339 in D. I. Mostofsky, ed. The behavior of fish and other aquatic animals. Academic Press, New York.
- Meyers, T. R., and J. D. Hendricks. 1982. A summary of tissue lesions in aquatic animals induced by controlled exposures to environmental contaminants, chemotherapeutic agents, and potential carcinogens. U.S. Natl. Mar. Fish. Serv. Mar. Fish. Rev. 44(12):1–17.
- Mix, M. C. 1986. Cancerous diseases in aquatic animals and their association with environmental pollutants: a critical literature review. *Mar. Environ. Res.* 20:1–141.
- Murchelano, R. A. 1982. Some pollution-associated diseases and abnormalities of marine fishes and shellfishes: a perspective for the New York Bight. Pages 327–346 in G. F. Mayer, ed. Ecological stress and the New York Bight: science and management. Estuarine Research Federation, Columbia, S.C.
- Pickering, A. D., editor. 1981. Stress and fish. Academic Press, New York. 367 pp.
- Pritchard, J. B., editor. 1987. Mechanisms of pollutant action in aquatic organisms. *Environ. Health Perspect.* 71. 193 pp.
- Rand, G. M., and S. R. Petrocelli, editors. 1985. Fundamentals of aquatic toxicology: methods and applications. Hemisphere Publishing Corp., Washington, DC. 666 pp.

- Sindermann, C. J. 1979. Pollution-associated diseases and abnormalities of fish and shellfish: a review. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 76:717-749.
- Sindermann, C. J. 1983. An examination of some relationships between pollution and disease. Rapp. P.-V. Reun. Cons. Int. Explor. Mer 182:37-43.
- Weitkamp, D. E., and M. Katz. 1980. A review of dissolved gas supersaturation literature. Trans. Am. Fish. Soc. 109:659-702.
- Wood, E. M. 1987. The toxicity of 3,400 chemicals to fish. (Report prepared in 1953.) U.S. Environ. Prot. Agency, EPA 560/6-87-002. 66 pp.

Fungal Diseases

- Alderman, D. J. 1982. Fungal disease of aquatic animals. Pages 189-242 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.
- McVicar, A. H. 1982. *Ichthyophonus* infections of fish. Pages 243-269 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.
- Neish, G. A., and G. C. Hughes. 1980. Fungal diseases of fishes. Book 6 in S. F. Snieszko and H. R. Axelrod, eds. Diseases of fishes. T. F. H. Publications, Neptune, N.J. 159 pp.
- Pickering, A. D., and L. G. Willoughby. 1982. *Saprolegnia* infections of salmonid fish. Pages 271-297 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.
- Srivastava, R. C. 1980. Studies in fish-mycopathology: a review. Parts 1-3. Mykosen 23:325-332, 380-391, 462-469.
- Srivastava, R. C. 1987. Fish mycopathology. Current Trends in Life Sciences 14. Today & Tomorrow's Printers and Publishers, New Delhi, India. 106 pp. (Distributed in the United States by Scholarly Publications, Houston, Tex.)
- Willoughby, L. G. 1978. Saprolegnias of salmonid fish in Windermere: a critical analysis. J. Fish Dis. 1:51-67.
- Amend, D. F. 1980. Development and use of commercial fish vaccines. Salmonid 3(6):8-12.
- Amend, D. F., and K. A. Johnson. 1981. Current status and future needs of *Vibrio anguillarum* bacterins. Dev. Biol. Stand. 49:403-417.
- Anderson, D. P., and O. W. Dixon. 1988. Fish biologics; a guide for the production and use of antisera, antigens, and other reagents in fish disease serodiagnosis. U.S. Fish and Wildlife Service, National Fish Health Research Laboratory, Kearneysville, W.Va. 255 pp.
- Anderson, D. P., M. Dorson, and P. Dubourget, editors. 1982. Antigens of fish pathogens; development and production for vaccines and serodiagnostics. (Les antigenes des micro-organismes pathogenes des poissons). Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France. 273 pp.
- Anderson, D. P., and W. Hennessen, editors. 1981. International Symposium on Fish Biologics: Serodiagnostics and Vaccines; proceedings of a symposium. Dev. Biol. Stand. 49. 489 pp.
- Busch, R. A. 1978. Protective vaccines for mass immunization of trout. Salmonid 1(6):10-14, 22.
- Busch, R. A. 1981. The current status of diagnostic serology for the major bacterial diseases of fishes. Dev. Biol. Stand. 49:85-96.
- De Kinkelin, P., and C. Michel, editors. 1984. Symposium on fish vaccination; theoretical background and practical results on immunization against infectious diseases. Office International des Epizooties, Fish Disease Commission, Paris, France. 248 pp.
- Dorson, M. 1981. Role and characterization of fish antibody. Dev. Biol. Stand. 49:307-319.
- Ellis, A. E. 1981. Non-specific defense mechanisms in fish and their role in disease processes. Dev. Biol. Stand. 49:337-352.
- Ellis, A. E. 1982. Differences between the immune mechanisms of fish and higher vertebrates. Pages 1-29 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.
- Ellis, A. E., editor. 1988. Fish vaccination. Academic Press, New York. 255 pp.
- Evenberg, D. 1988. Surface antigens of the fish-pathogenic bacterium *Aeromonas salmonicida*; their potential use in vaccine development. Ph. D. thesis, University of Utrecht, The Netherlands. 134 pp.
- Harrell, L. W. 1979. Immunization of fishes in world mariculture: a review. Proc. World Mariculture Soc. 10:534-544.
- Lamars, C. 1985. The reaction of the immune system of fish to vaccination. Ph. D. thesis, Agricultural University, Wageningen, The Netherlands. 256 pp.
- Manning, M. J., M. F. Grace, and C. J. Secombes. 1982. Developmental aspects of immunity and tolerance in fish. Pages 31-46 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.
- Manning, M. J., and M. F. Tatner, editors. 1985. Fish immunology. Academic Press, Orlando, Fla. 374 pp.
- Manning, M. J., M. F. Tatner, and C. J. Secombes. 1987. Immunology and disease control mechanisms of fish. J. Fish Biol. 31(suppl. A):1-261.
- Rijkers, G. T. 1981. Introduction to fish immunology. Dev. Comp. Immunol. 5:527-534.
- Rijkers, G. T. 1982. Non-lymphoid defense mechanisms in fish. Dev. Comp. Immunol. 6:1-13.
- Stolen, J. S., D. P. Anderson, and W. B. van Muiswinkel. 1986. Fish immunology. Elsevier, New York. 443 pp.

Histology

- Bell, G. R., D. Slind, and J. W. Bagshaw. 1986. Pictorial atlas of histology of the sablefish (*Anoplopoma fimbria*). Can. Spec. Publ. Fish. Aquat. Sci. 94. 93 pp.
- Ferguson, H. W. 1989. Systemic pathology of fish: a text and atlas of comparative tissue responses in diseases of teleosts. Iowa State University Press, Ames. 263 pp.
- Groman, D. B. 1982. Histology of the striped bass. Am. Fish. Soc. Monogr. 3. Bethesda, Md. 116 pp.
- Kubota, S. S., T. Miyazaki, and S. Egusa. 1982. Color atlas of fish histopathology. Vol. I. Shin-Suisan Shinbun-Sha, Ltd., Tokyo, Japan. 212 pp.
- Mallatt, J. 1985. Fish gill structural changes induced by toxicants and other irritants: a statistical review. Can. J. Fish. Aquat. Sci. 42:630-648.
- Miyazaki, T. 1980. Histopathological study on bacterial infections in fishes. Bull. Fac. Fish. Mie Univ. 7:63-149.
- Yasutake, W. T. 1987. Collection and preparation of fish for histological examination. U.S. Fish Wildl. Serv., Fish Wildl. Leaflet. 11. 5 pp.
- Yasutake, W. T., and J. H. Wales. 1983. Microscopic anatomy of salmonids: an atlas. U.S. Fish Wildl. Serv., Resour. Publ. 150. 189 pp.

Immunology

- Ahne, W. 1981. Serological techniques currently used in fish virology. Dev. Biol. Stand. 49:3-27.

- van Muiswinkel, W. B., and E. L. Cooper, editors. 1981. Immunology and immunization of fish. Proceedings of the Wageningen, Netherlands, conference, 22–24 June 1981. Dev. Comp. Immuno. 6(Suppl. 2):1–255.
- Ward, P. D. 1982. The development of bacterial vaccines for fish. Pages 47–58 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.

Nutritional Diseases

- Castell, J. D. 1979. Review of lipid requirements of finfish. Pages 59–84 in J. E. Halver and K. Tiews, eds. Finfish nutrition and fishfeed technology. Vol. I. Heenemann Verlagsgesellschaft mbH, Berlin, Federal Republic of Germany.
- Cowey, C. B. 1979. Protein and amino acid requirements of finfish. Pages 3–16 in J. E. Halver and K. Tiews, eds. Finfish nutrition and fishfeed technology. Vol. I. Heenemann Verlagsgesellschaft mbH, Berlin, Federal Republic of Germany.
- Halver, J. E. 1979. Vitamin requirements of finfish. Pages 45–58 in J. E. Halver and K. Tiews, eds. Finfish nutrition and fishfeed technology. Vol. I. Heenemann Verlagsgesellschaft mbH, Berlin, Federal Republic of Germany.
- Herman, R. L. 1989. Systemic noninfectious granulomatosis of fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 79. 4 pp.
- Hughes, S. G. 1985. Nutritional eye diseases in salmonids: a review. Prog. Fish-Cult. 47:81–85.
- Lall, S. P. 1979. Minerals in finfish nutrition. Pages 85–97 in J. E. Halver and K. Tiews, eds. Finfish nutrition and fishfeed technology. Vol. I. Heenemann Verlagsgesellschaft mbH, Berlin, Federal Republic of Germany.
- Millikin, M. R. 1982. Qualitative and quantitative nutrient requirements of fishes: a review. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 80:655–686.
- Poston, H. A. 1985. Vitamin requirements of finfishes: a review. F. Hoffmann-La Roche Information Service, Animal Nutrition Department, Basel, Switzerland. 36 pp.
- Rumsey, G. L., D. L. Garling, Jr., J. E. Halver, H. A. Poston, S. J. Slinger, and J. T. Windell. 1981. Nutrient requirements of coldwater fishes. National Academy Press, Washington, DC. 63 pp.
- Stickney, R. R., J. D. Castell, R. W. Hardy, H. G. Ketola, R. T. Lovell, and R. P. Wilson. 1983. Nutrient requirements of warmwater fishes and shellfishes. Rev. ed. National Academy Press, Washington, DC. 102 pp.
- Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Canning, E. U., J. Lom, and I. Dykova. 1986. The microsporidia of vertebrates. Academic Press, Orlando, Fla. 289 pp.
- Clifton-Hadley, R. S., D. Bucke, and R. H. Richards. 1984. Proliferative kidney disease of salmonid fish: a review. J. Fish Dis. 7:363–377.
- Fryer, G. 1982. The parasitic Copepoda and Branchiura of British freshwater fishes: a handbook and key. Freshwater Biol. Assoc. Sci. Publ. 46. 87 pp.
- Hedrick, R. P., M. L. Kent, and C. E. Smith. 1986. Proliferative kidney disease in salmonid fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 74. 9 pp.
- Hoffman, G. L. 1978. Ciliates of freshwater fishes. Pages 583–632 in J. P. Kreier, ed. Parasitic protozoa. Vol. 2. Academic Press, New York.
- Hoffman, G. L., and A. J. Mitchell. 1986. Some parasites and diseases of warmwater fishes. U.S. Fish Wildl. Serv., Fish Wildl. Leaflet. 6. 22 pp.
- Hoffman, G. L., and G. Schubert. Some parasites of exotic fishes. Pages 233–261 in W. R. Courtenay, Jr., and J. R. Stauffer, Jr., eds. Distribution, biology, and management of exotic fishes. Johns Hopkins University Press, Baltimore, Md.
- Kabata, Z. 1979. Parasitic Copepoda of British fishes. Ray Society, London. 667 pp.
- Lichtenfels, J. R., and M. H. Pritchard. 1982. A guide to the parasite collections of the world. Special Publication of the American Society of Parasitology, Lawrence, Kans. 141 pp.
- Love, M. S., and M. Moser. 1983. A checklist of parasites of California, Oregon, and Washington marine and estuarine fishes. U.S. Natl. Mar. Fish. Serv., NOAA Tech. Rep. NMFS SSRF-777. 576 pp.
- Margolis, L., and J. R. Arthur. 1979. Synopsis of the parasites of fishes of Canada. Bull. Fish. Res. Board Can. 199. 269 pp.
- Margolis, L., and Z. Kabata, editors. 1988. Guide to the parasites of fishes of Canada. Part II. Crustacea. Department of Fisheries and Oceans, Ottawa, Canada. 184 pp.
- Mitchell, A. J., and G. L. Hoffman. 1980. Important tapeworms of North American freshwater fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 59. 18 pp.
- Möller, H. 1980. Bibliography on fungus- and zooparasites in NE Atlantic fish. Special meeting on diseases of commercially important marine fish and shellfish, Copenhagen, Denmark, 1–3 October 1980. International Council for the Exploration of the Sea, Copenhagen. 24 pp.
- Molnar, K., chairman. 1987. Actual problems in fish parasitology. Proceedings of the second international symposium of ichthyoparasitology, Tihany, Hungary, 27 September–3 October 1987. Veterinary Medical Research Institute, Hungarian Academy of Sciences, Budapest, Belgium. 115 pp.
- Pritchard, M. H., and G. O. W. Kruse. 1982. The collection and preservation of animal parasites. University of Nebraska Press, Lincoln. 141 pp.
- Wolf, K., and M. E. Markiw. Salmonid whirling disease. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 69. 12 pp.
- Wootten, R., and J. W. Smith. 1980. Studies on the parasite fauna of juvenile Atlantic salmon, *Salmo salar* L., cultured in fresh water in eastern Scotland. Z. Parasitenkd. D. 63:221–231.

Parasites

- Bartholomew, J. L., J. S. Rohovec, and J. L. Fryer. 1989. *Ceratomyxa shasta*, a myxosporean parasite of salmonids. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 80. 8 pp.
- Beumer, J. P., L. D. Ashburner, M. E. Burbury, E. Jette, and D. J. Latham. 1983. A checklist of the parasites of fishes from Australia and its adjacent Antarctic Territories. Commonwealth Institute of Parasitology, Commonwealth Agricultural Bureaux, Farnham Royal, Slough, England, Tech. Commun. 48. 99 pp.
- Beverley-Burton, M. 1984. Monogenea and Turbellaria. Pages 5–209 in L. Margolis and Z. Kabata, eds. Guide to the parasites of fishes of Canada. Part I. Can. Spec. Publ. Fish. Aquat. Sci. 74.
- Burreson, E. M. 1982. Trypanoplasmosis in flounder along the Atlantic coast of the United States. Pages 251–260 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. Antigens of fish pathogens; development and production for vaccines and serodiagnostics. Collection Fondation

Viral Diseases

- Agius, C. 1982. Virus diseases of warm water fish. Pages 115–130 in R. J. Roberts, ed. Microbial diseases of fish. Spec. Publ. Soc. Gen. Microbiol. 9.

- Ahne, W. 1981. Serological techniques currently used in fish virology. *Dev. Biol. Stand.* 49:3-27.
- Bootsma, R., and Ebreget. 1982. Spring viremia of carp. Pages 81-86 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. *Antigens of fish pathogens; development and production for vaccines and serodiagnostics*. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- De Kinkelin, P. 1982. Viral haemorrhagic septicaemia. Pages 51-61 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. *Antigens of fish pathogens; development and production for vaccines and serodiagnostics*. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Dobos, P., and T. E. Roberts. 1983. The molecular biology of infectious pancreatic necrosis virus: a review. *Can. J. Microbiol.* 29:377-384.
- Dorson, M. 1982. Infectious pancreatic necrosis of salmonids: overview of current problems. Pages 7-31 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. *Antigens of fish pathogens; development and production for vaccines and serodiagnostics*. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Gross, L. 1983. Tumors, leukemia, and lymphosarcomas in fish. Pages 103-116 in L. Gross, ed. *Oncogenic viruses*. 3rd ed. Vol. 1. Pergamon Press, New York.
- Hetrick, F. M. 1984. DNA viruses associated with diseases of marine and anadromous fish. *Helgol. Meeresunters.* 37:289-307.
- Hill, B. J. 1981. Virus diseases of fish. Pages 231-261 in E. P. J. Gibbs, ed. *Virus diseases of food animals*. Academic Press, New York.
- Hill, B. J. 1982. Infectious pancreatic necrosis virus and its virulence. Pages 91-114 in R. J. Roberts, ed. *Microbial diseases of fish*. Spec. Publ. Soc. Gen. Microbiol. 9.
- Kuroda, Y., E. Kurstak, and K. Maramorosch, editors. 1988. Fish cell cultures. Part 6. Pages 191-235 in Y. Kuroda, E. Kurstak, and K. Maramorosch, eds. *Invertebrate and fish tissue culture; proceedings of the seventh international conference on invertebrate and fish tissue culture*, Ohito, Japan, 10-16 May 1987. Springer-Verlag, New York.
- Leong, J. C., and T. Y. Barila, editors. 1983. Proceedings: workshop on viral diseases of salmonid fishes in the Columbia River Basin, Portland, Oregon, 7-8 October 1982. Special Publication. Bonneville Power Administration, Portland, Oreg. 173 pp.
- McAllister, P. E. 1979. Fish viruses and viral infections. Pages 401-470 in H. Fraenkel-Conrat and R. R. Wagner, eds. *Comprehensive virology*. Vol. 14. Newly characterized vertebrate viruses. Plenum Press, New York.
- McAllister, P. E. 1983. Infectious pancreatic necrosis (IPN) of salmonid fishes. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 65. 12 pp.
- Nicholson, B. L. 1982. Infectious hematopoietic necrosis (I.H.N.). Pages 63-78 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. *Antigens of fish pathogens; development and production for vaccines and serodiagnostics*. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Pilcher, K. S., and J. L. Fryer. 1980. The viral diseases of fish: a review through 1978. Part I: Diseases of proven viral etiology. *CRC Crit. Rev. Microbiol.* 7:287-364.
- Pilcher, K. S., and J. L. Fryer. 1980. The viral diseases of fish: a review through 1978. Part II: Diseases in which a viral etiology is suspected but unproven. *CRC Crit. Rev. Microbiol.* 8:1-25.
- Plumb, J. A. 1986. Channel catfish virus disease. U.S. Fish Wildl. Serv., Fish Dis. Leaflet. 73. 7 pp.
- Plumb, J. A., and D. A. Jezek. 1982. Channel catfish virus disease. Pages 33-49 in D. P. Anderson, M. Dorson, and P. Dubourget, eds. *Antigens of fish pathogens; development and production for vaccines and serodiagnostics*. Collection Fondation Marcel Merieux. Association Corporative des Étudiants en Médecine de Lyon, Lyon, France.
- Wolf, K. 1979. Cold-blooded vertebrate cell and tissue culture. Pages 466-477 in W. B. Jakoby and I. H. Pastan, eds. *Methods in enzymology*. Vol. 58. Cell culture. Academic Press, New York.
- Wolf, K. 1980. Virology of aquarium fishes, a review—1980. *J. Aquaric.* 1:58-62.
- Wolf, K. 1981. Viral diseases of fish and their relation to public health. Pages 403-437 in J. H. Steele and G. Beran, eds. *CRC handbook series in zoonoses*. Section B: Viral zoonoses. Vol. II. CRC Press, Boca Raton, Fla.
- Wolf, K. 1982. Newly discovered viruses and viral diseases of fishes, 1977-1981. Pages 59-90 in R. J. Roberts, ed. *Microbial diseases of fish*. Spec. Publ. Soc. Gen. Microbiol. 9.
- Wolf, K. 1983. Biology and properties of fish and reptilian herpesviruses. Pages 319-366 in B. Roizman, ed. *The herpesviruses*. Vol. 2. Plenum Press, New York.
- Wolf, K. 1984. Fish viruses: their biology, classification, hosts, pathology, and control. Pages 197-215 in E. Kurstak and R. G. Marusyk, eds. *Control of virus diseases*. Marcel Dekker, New York.
- Wolf, K. 1988. Fish viruses and fish viral diseases. Cornell University Press, Ithaca, New York. 476 pp.
- Wolf, K., and W. Ahne. 1982. Fish cell culture. Pages 305-328 in K. Maramorsch, ed. *Advances in cell culture*. Vol. 2. Academic Press, New York.
- Wolf, K., and J. A. Mann. 1980. Poikilotherm vertebrate cell lines and viruses: a current listing for fishes. *In Vitro* 16:168-179.

A list of current *Fish Disease Leaflets* follows.

70. Brown Blood Disease (Methemoglobinemia) of Fishes, by P. R. Bowser. 1984. 6 pp.
71. *Edwardsiella* Infections of Fishes, by G. L. Bullock and R. L. Herman. 1985. 6 pp.
72. Columnaris Disease of Fishes, by G. L. Bullock, T. C. Hsu, and E. B. Shotts, Jr. 1986. 9 pp.
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75. Epitheliocystis Infection of Fishes, by R. L. Herman and K. Wolf. 1987. 4 pp.
76. Annotated Bibliography of the Diseases and Parasites of Striped Bass, by K. W. McAllister, J. A. Mann, and L. C. McKenzie. 1987. 16 pp.
77. Vibriosis in Fish, by G. L. Bullock. 1987. 11 pp.
78. Bacterial Kidney Disease of Salmonid Fishes Caused by *Renibacterium Salmoninarum*, by G. L. Bullock and R. L. Herman. 1988. 10 pp.
79. Systemic Noninfectious Granulomatoses of Fishes, by R. L. Herman. 1988. 4 pp.
80. *Ceratomyxa shasta*, a Myxosporean Parasite of Salmonids, by J. L. Bartholomew, J. S. Rohovec, and J. L. Fryer. 1989. 8 pp.

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